

REMARKS

Upon entry of the instant amendment, claims 1-4, 6-9, 11-13, 15-18 and 20 will remain pending in the above-identified application.

In this Amendment, claims 1, 7, and 17 have been amended to recite limitations previously recited in claims 5, 10, and 19 (*and claims 5, 10, and 19 have been canceled to prevent a redundancy with amended claims 1, 7 and 17*).

Additionally, claim 12 has been amended to clarify that the recited "aqueous binder" is "an aqueous mixed binder comprising styrene-butadiene rubber and carboxymethylcellulose" (*and claim 14 has been canceled to prevent a redundancy with amended claim 12*).

Further, the dependency of claim 11 has been changed to claim 7, thereby correcting a typographical error in original claim 11.

Accordingly, the present amendments to the claims do not introduce new matter into the application as originally filed. As such entry of the instant amendment and favorable action on the merits is earnestly solicited at present.

Claim Rejection under 35 U.S.C. § 103(a)

Claims 1-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over **Kizu et al. US '739** (US 2003/0165739) in view of **Takami et al. US '387** (US 5,753,387) and further in view of **Ohsaki et al. US '043** (US 5,856,043) OR over **Ohsaki et al. US '043** (US 5,856,043) in view of **Kizu et al. US '739** (US 2003/0165739) and further in view of **Takami et al. US '387** (US 5,753,387).

Reconsideration and withdrawal of the above alternative rejections is respectfully requested based on the following considerations.

Legal Standard for Determining Prima Facie Obviousness

MPEP 2141 sets forth the guidelines in determining obviousness. First, the Examiner has to take into account the factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which has provided the controlling framework for an obviousness analysis. The four *Graham* factors are:

- (a) determining the scope and content of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating any evidence of secondary considerations.

Graham v. John Deere, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

Second, the Examiner has to provide some rationale for determining obviousness. MPEP 2143 sets forth some rationales that were established in the recent decision of *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). Exemplary rationales that may support a conclusion of obviousness include:

- (a) combining prior art elements according to known methods to yield predictable results;
- (b) simple substitution of one known element for another to obtain predictable results;
- (c) use of known technique to improve similar devices (methods, or products) in the same way;
- (d) applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- (e) "obvious to try" — choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success

(f) known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

(g) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

As the MPEP directs, all claim limitations must be considered in view of the cited prior art in order to establish a *prima facie* case of obviousness. See MPEP 2143.03.

Distinctions Over the Cited Art

Kizu et al. US '739 describes that carbon black may be used as a conductive material of a negative electrode. However, Kizu et al. US '739 does not describe the use of an aqueous mixed binder comprising styrene-butadiene rubber and carboxymethylcellulose as the binder of a negative electrode.

Takami et al. US '387 describes that a negative electrode may contain a carbonaceous material which should be of a multi-phase structure having a region of graphite structure and a region of amorphous carbon structure (*see column 4, lines 62-67 reproduced below*).

As for the negative electrode 6, those containing a carbonaceous material which is capable of absorbing and desorbing lithium ion may be employed. In particular, the carbonaceous material should be of a multi-phase structure having a region of graphite structure and a region of amorphous carbon structure. (Takami et al. US '387, col. 4, lines 62-67.)

In such a carbonaceous material of Takami et al. US '387, only a part of each particle has the amorphous carbon structure. A carbonaceous material which is wholly of an amorphous (or low crystalline) carbon structure, such as carbon black, does not have such a multi-phase structure as required by Takami et al. US '387.

Furthermore, the negative electrode of Takami et al. US '387 consists of 90 to 98% by weight of the above-described carbonaceous material as a negative electrode active material and 2 to 10% by weight of a binder (*see column 8, line 66 to column 9, line 2 reproduced below*).

A preferable mixing ratio of the aforementioned carbonaceous material with the binder may be: 90 to 98% by weight for the carbonaceous material and 2 to 10% by weight for the binder. (Takami et al. US '387, col. 8, line 66 to col. 9, line 2.)

From the thus recited percentages of the carbonaceous material and the binder, it is understood that the negative electrode does not contain any other material than the carbonaceous material and the binder. Accordingly, Takami et al. US '387 fails to teach the use of a carbonaceous material that does not have a graphite structure as a conductive material.

Ohsaki et al. US '043 describes that a polar solvent, particularly a non-aqueous polar solvent, such as N-methyl-2-pyrrolidone, is preferable as a solvent in which the carbon fibers and the binder are dispersed during the production of the negative electrode of a non-aqueous electrolyte secondary battery.

Ohsaki et al. US '043 does not describe or teach the use of water as a solvent and thus the use of an aqueous binder mixture.

Consequently, it is submitted that the present invention would not have been obvious from any combination of Kizu et al. US '739, Takami et al. US '387 and Ohsaki et al. US '043. In support of this contention, it is noted that the cited art of record (*whether considered singularly or in combination*) fails to provide for each of the limitations recited in the instantly pending claims, and also fails to provide those of ordinary skill in the art with any reason or rationale that would allow them to arrive at the instant invention as claimed.

Any contentions of the USPTO to the contrary must be reconsidered at present.

Conclusion

Based on the amendments and remarks presented herein the USPTO is respectfully requested to issue a Notice of Allowance in the matter of the instant application, clearly indicating that each of instantly pending claims 1-4, 6-9, 11-13, 15-18 and 20 are allowed and patentable at present.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey, Reg. No. 32,881 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Dated: November 14, 2008

Respectfully submitted,

By 

John W. Bailey

Registration No.: 32,881

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Road

Suite 100 East

P.O. Box 747

Falls Church, Virginia 22040-0747

(703) 205-8000

Attorney for Applicant